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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,997	08/12/2002	Takao Taniguchi	AW-C216	9038

7590 08/25/2004
Lorusso & Loud
3137 Mount Vernone Avenue
Alexandria, VA 22305

EXAMINER

SHAKERI, HADI

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

4W

Office Action Summary	Application No.	Applicant(s)	
	10/088,997	TANIGUCHI ET AL.	
	Examiner	Art Unit	
	Hadi Shakeri	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
- 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Objections

1. Claims 26, 27, 43, 49 and 50 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Regarding claim 26, it is unclear how placing a gear in a transmission further limits a method of finishing a tooth surface.

It is unclear how the nature of apparatus is being properly claimed (as argued) in the method claim of claim 27.

Regarding claims 49 and 50, the language as written is narrative, and only describes what would naturally follow from the steps of the parent claims.

Regarding claim 43, the language as written renders the claim objectionable, because of improper dependency, since it is unclear whether the claim is dependent or independent. If the claim is independent, i.e., "a gear (an article claim" the reference to "claim 25", renders it improper, if the claim is a dependent claim, then it fails to further limit the parent claim, i.e. "method of finishing a tooth surface".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

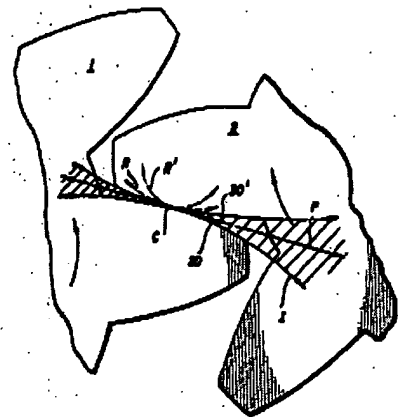
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 25-27, 31-33, 35-37 and 43 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hosoya (US 4,920,703) in view Praeg et al. (2,942,389).

Hosoya discloses all the limitations of claim 25, i.e., meshing a workpiece gear with an "actual" master gear while supplying non abrasive aqueous solution, wherein the parallel axes of the gears are rocked in any desired directions producing a surface roughness of 1.5 micron. Regarding the steps of oxidizing the surface, it is noted that oxidation would naturally follow form machining oil having aqueous base which are usually used in the art, specially for non-ferrous gears as evident by cited references Whalen et al. and Praeg et al., however, in the alternative Praeg et al. is cited which teaches using water base coolant. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Hosoya with the water base machining oil as taught by Praeg et al. as an inexpensive choice in lessening the operation costs.



Regarding 26, 27, 31-33 and 35-37, Hosoya meets the limitations.

Regarding claim 43, Hosoya or in the alternative Hosoya in view of Praeg et al. meets all the limitations, however it is also noted that product-by-process claims are not limited to the manipulations of the process steps, only the structure implied by the steps, thus a device produced by the method of prior art, would meet all the structural limitations, i.e., a gear produced with desired properties. (See MPEP 2113 [R-1]).

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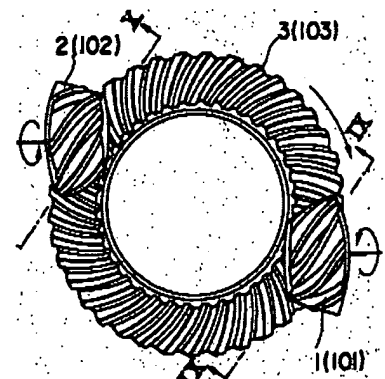
3. Claims 28, 29, 34 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya or in the alternative Hosoya in view of Praeg et al.

Hosoya or in the alternative Hosoya in view of Praeg et al. meets all the limitations of the above claims, except for disclosing applied meshing pressure; desired finish; number of revolution per minute and duration of meshing; and gears having perpendicular axes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a pressure of 5 Mpa; use relatively longer time or higher speed (which would mesh the teeth over 10,000) based on the desired finishing parameters and/or type of workpiece material; or apply the invention to gears having right angle axes, since it has been held that changing shape, dependent on work-piece parameters, involves only routine skill in the art. *In re Stevens*, 101 US PQ 284(CCPA1954).

4. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya or in the alternative Hosoya in view of Praeg et al. further in view of Igrashi et al. (US 4,171,558).

Hosoya or in the alternative Hosoya in view of Praeg et al. meets all the limitations of the above claim, except for disclosing the composition for the cutting oil. Igrashi et al. teaches cutting oils containing acids, sulfonate, carboxylate... It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of or in the alternative Hosoya in view of Praeg et al. with the coolant as taught by Igrashi et al. to provide wear resistance and/or to reduce thermal shock.

5. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya or in the alternative Hosoya in view of Praeg et al. further in view of Takahashi et al. (US 3,813,821).



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Hosoya or in the alternative Hosoya in view of Praeg et al. meets all the limitations of claim 44, except for disclosing the first and second machining gears. Takahashi et al. teaches gear finishing method and apparatus containing a pair of machining gears. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Hosoya or in the alternative Hosoya in view of Praeg et al. with the system as taught by Takahashi et al. to adapt the invention for grinding hypoid gears.

6. Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya or in the alternative Hosoya in view of Praeg et al. further in view of McGlasson et al. (US 6,217,421).

Hosoya or in the alternative Hosoya in view of Praeg et al. meets all the limitations of the above claims as best understood, except for disclosing stopping the machining when certain noise and/or vibration level is reached. McGlasson et al. teaches method and apparatus for machining gears with vibration or noise measurement and monitoring means to stop the operation when desired level are reached. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Hosoya or in the alternative Hosoya in view of Praeg et al. with the measurement and monitoring means as taught by McGlasson et al. to obtain a higher and more consistent quality of finished workpieces as well as the shortest cycle time.

7. Claims 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoya or in the alternative Hosoya in view of Praeg et al. further in view of Miyauch (US 5,347,760).

Hosoya or in the alternative Hosoya in view of Praeg et al. meets all the limitations of the above claims as best understood, except for disclosing a lubricant recovery system. Miyauch teaches method and apparatus for machining gears with oil recovery system. It would have

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been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Hosoya or in the alternative Hosoya in view of Praeg et al. with the coolant recovery system as taught by Miyauch to recover and reuse the oil in lowering operational cost.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Response to Arguments

9. Applicant's arguments filed May 10, 2004 have been fully considered but they are not persuasive. First regarding the Rz unit, it is noted that one skilled in the art would not readily recognize the value given are in micron, since it may also be in mils or mm, however, due to the specific range as originally filed, limiting the range to micron would not be considered as new matter, but as to correct an inadvertent error or omission in the application as originally filed. With regards to the argument concerning the anti-corrosive atmosphere and the Applicant's conclusion that therefore Hosoya teaches away from using aqueous solutions, it is noted that firstly aqueous based lubricant or machining oil with glycols or alcohols have been used in the

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art as evident by cited references, especially in non-ferrous applications, and secondly "corrosion" or "anticorrosive" as stated in the base reference does not necessarily refer to "oxidation". In the alternative, however, using water base lubricant in cooling and transfer of particles removed from the tool is a clear teaching (col. 6, lines 1-8) in the teaching reference. The argument regarding placing the master gear into a transmission, as noted above, does not further limit the method of finishing a tooth surface. Grinding the gears as argued by Applicant, in which lubricant is used as required by the base reference in which a water based lubricant is used as taught by the teaching reference would naturally meet the limitations as recited, i.e., a chemical mechanical polishing. The argument regarding Igrashi is not persuasive, since the Examiner does not agree that Hosoya teaches away from water based lubricant, especially in non-ferrous applications. The argument regarding McGlasson et al. is not persuasive, since the reference is utilized to teach the end point detection/termination means not for the use of lubricants, which vary depending on the workpiece/operational parameters. The argument regarding Miyauch is not persuasive, since firstly the reference is argued individually and not in combination with the base reference, i.e., if water base lubricant is supplied, the "water supply means" is met, and secondly, since the references are applied to an article claim, i.e., the device (apparatus), thus the water supply means that supplies water or an aqueous solution as recited, defining the structures or elements claimed are capable of supplying water, or any other fluid. The references as applied are considered meeting the limitations as recited.

Conclusion

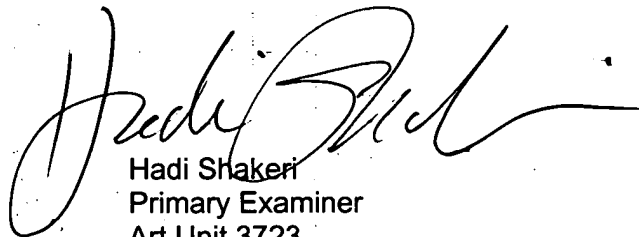
10. Prior art made of record and not relied upon are considered pertinent to applicant's disclosure. Fushimi et al. is cited to show related invention.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is 703-308-6279. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail, III can be reached on 703-308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Hadi Shakeri', with a long horizontal flourish extending to the right.

Hadi Shakeri
Primary Examiner
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August 21, 2004